The medical department should also be prepared to give advice concerning the services of specialists; the employee should be referred to men of ability and integrity and at the proper time for the best results.

There is an excellent opportunity in this work for the propagation of the right kind of health information at the time when it may do the most good.

Examination on return to work after illness is a health procedure worthy of a regular place in an industrial health program.

C. O. SAPPINGTON.

Medicine

ETIOLOGY of Rheumatic Fever—Ever since the beginning of the bacteriological era some fifty years ago physicians have attempted to prove a microbic cause of acute rheumatic fever. For the interesting story of the successive organisms which have been incriminated, beginning with the anerobic bacillus of Achalme, the reader is referred to the review by Swift and Kinsella.[1] Suffice it to say that nonhemolytic streptococci of one sort or another, especially the "diplococcus rheumaticus" of Poynton and Payne, have received especial support, although the most conservative modern opinion holds that the virus of rheumatic fever is as yet undetermined. Swift [1] studied the subject critically, and with the most careful methods of blood culture was able to recover nonhemolytic streptococci in less than 10 per cent of fifty-eight patients. Furthermore, the bacteria were not uniform, but represented different members of the so-called "viridans" group. It should be remembered that nonhemolytic streptococci are uniformly present in tremendous numbers in the upper air passages of every human being, both normal and abnormal;[2] they appear within twenty-four hours after birth. In accord with this fact it is found, in all laboratories where many blood cultures are made, that from time to time a positive yield of s. viridans is obtained regardless of the nature of the disease which is being investigated.

Rheumatic fever presents certain fundamental clinical differences from known nonhemolytic streptococcus infections such as s. viridans endocarditis. The pathological changes, as clearly pointed out by McCallum in his Harrington lecture,[3] are entirely different; the great tendency to renal lesions in streptococcus infections is absent in rheumatic fever, and the response to salycilates, often striking in the latter, is insignificant in the former.

It is with interest, therefore, that one reads the recent paper of Small [4] in which a nonhemolytic streptococcus, designated streptococcus cardioarthritidis, is advanced as the cause of rheumatic fever. The organism, which possesses the characteristics of many members of this group, was recovered in the first instance from the blood of a patient with rheumatic fever. Later similar organisms were isolated from the *throats* of patients not only with acute rheumatic fever, but with chronic arthritis, acute nephritis, and other conditions. The original blood culture strain in large doses (25 cc. of 24-hour broth culture) produced arthritis and other lesions in rabbits. A serum prepared by immunizing a horse was used in a small number of patients. Its administration was followed usually by a marked improvement within one to two days, which in some cases was maintained for months.

Interesting as these results appear to be, a careful analysis of the work yields no final evidence either that the "streptococcus cardioarthritidis" is the cause of rheumatic fever or that sera prepared from it have a specific effect. The occasional recovery of a streptococcus from the blood, as pointed out above, means little; the recovery of nonhemolytic streptococci from the throat—their normal habitat—means even less. It has been shown repeatedly that any streptococcus injected into rabbits in large quantities produces joint lesions and other changes which have no specific relationship to the pathology of rheumatic fever.[5] The therapeutic effects of Small's serum immediately raise the question of nonspecific action of foreign protein. Results apparently as striking have been reported in large series of cases by Miller,[6] Cecil,[7] and many other workers after injection intravenously of killed typhoid bacilli and other substances.

In brief, before accepting the etiological rôle of the s. cardioarthritidis in rheumatic fever one would need information about the frequency of this organism in the throats of the population in general, evidence should be forthcoming that the bacteria produce the specific lesion (Aschoff body) in animals, and finally it must be shown that better results are obtained therapeutically with the immune serum than with plain horse serum, a question at best difficult to decide in view of the variable natural course of the disease.

Meanwhile the matter has already received newspaper publicity. It behooves physicians to adopt a most conservative attitude and to await the results of large series of cases treated under careful hospital control and followed over a considerable period of time before subjecting their patients with rheumatic fever and chronic arthritis to treatment with antistreptococcus sera.

ARTHUR L. BLOOMFIELD.

USE and Abuse of Alkaline Waters—The widespread use of bottled alkaline waters in California has assumed such proportions that it would seem wise for physicians to survey the practice rather critically.

To what extent has this usage arisen as a result of medical prescription and direction, and to what extent from commercial advertising?

If we as physicians are responsible are we fully

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